



October 25, 2023

**ADDENDUM - TEXAS MATERNAL MORTALITY AND MORBIDITY REVIEW COMMITTEE AND DEPARTMENT OF STATE HEALTH SERVICES JOINT BIENNIAL REPORT 2022**

**Background**

The Texas Maternal Mortality and Morbidity Review Committee (MMMRC) and Department of State Health Services (DSHS) Joint Biennial Report published in December 2022 included a partial cohort for maternal deaths that occurred in 2019. In June 2023, the MMMRC completed the review of all 147 cases in the 2019 cohort. The following information reflects updates to case cohort review findings prepared by DSHS. NOTE: There are no changes to MMMRC recommendations from the 2022 report.

**Updated MMMRC Case Cohort Review Findings**

From March 2021 to June 2023, the MMMRC reviewed the full cohort of 147 confirmed pregnancy-associated death cases to determine pregnancy-relatedness. For each pregnancy-related death, the MMMRC worked to determine the underlying cause of death, if the death was potentially preventable, critical factors contributing to the death, and recommendations and actions that can impact the contributing factors.

**Finding #1 – 43 percent of the pregnancy-associated deaths from the 2019 case cohort are pregnancy-related.**

The MMMRC determined of the 147 pregnancy-associated death cases in 2019, 63 (43 percent) were pregnancy-related and 57 (39 percent) were pregnancy-associated, but not related. The MMMRC was unable to determine pregnancy-relatedness for 27 (18 percent) cases.

**Finding #2 – Most pregnancy-related deaths were preventable.**

The MMMRC determines a pregnancy-related death was preventable if they find there was at least some chance of averting the death by one or more feasible changes to the circumstances of the patient, provider, facility, systems, or community factors contributing to the death. The MMMRC determined there was at least some chance for preventability in 90 percent (n=57) of reviewed 2019 case cohort pregnancy-related deaths (N=63).

**Finding #3 – Six underlying causes of death accounted for 80 percent of all reviewed 2019 case cohort pregnancy-related deaths.**

Mental health conditions were the most frequently observed leading cause of pregnancy-related death (22 percent; n=14), followed by obstetric hemorrhage (21 percent; n=13), and non-cerebral thrombotic embolism (13 percent; n=8). Injury, infection, and cardiomyopathy tied for the fourth most frequent underlying causes of death at eight percent (n=5) each.<sup>1</sup>

**Finding #4 – Multiple underlying causes contributed to reviewed pregnancy-related deaths caused by mental health conditions and obstetric hemorrhage.**

Among pregnancy-related deaths in 2019 (N=63), mental health conditions were the leading cause of death accounting for 22 percent (n=14) of all deaths. Among these, depressive disorder was the top underlying mental health condition (n=10), followed by substance use disorder (n=2), bipolar disorder (n=1), and psychotic disorder (n=1).

For the second leading cause of death among pregnancy-related cases, obstetric hemorrhage (N=13), uterine rupture (n=3) and ruptured ectopic pregnancy (n=3) were tied as the top underlying causes of pregnancy-related hemorrhage deaths. Placental abruption and placenta accreta spectrum (n=2 each) were tied as the second leading underlying hemorrhage causes.

**Finding #5 – Obesity, mental disorders, discrimination, and substance use disorder each contributed to pregnancy-related death.**

Through case review, the MMMRC identified the following circumstances surrounding death which contributed to many pregnancy-related deaths (N=63).

- Mental disorders, other than substance use disorder (SUD), contributed to 25 percent of pregnancy-related deaths (n=16);
- Obesity contributed to 22 percent of pregnancy-related deaths (n=14);
- Discrimination contributed to 17 percent of pregnancy-related deaths (n=11)<sup>2,3</sup>; and
- SUD, including SUD-associated with mental disorders, contributed to 11 percent of pregnancy-related deaths (n=7).

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<sup>1</sup> According to the World Health Organization, the underlying cause of death is the disease or injury that initiated the chain of events leading to death or the circumstances of the accident or violence that produced the fatal injury.

<sup>2</sup> In May 2020, the CDC added discrimination to the Maternal Mortality Review Information Application (MMRIA) Committee Decisions Form. Per the CDC, discrimination is described as treating someone less or more favorably based on the group, class or category they belong to resulting from biases, prejudices, and stereotyping. It can manifest as differences in care, clinical communication and shared decision-making. (Smedley et al, 2003 and Dr. Rachel Hardeman).

<sup>3</sup> The nature of discrimination identified by the MMMRC for the eleven cases varied and did not show a specific trend.

**Finding #6 – Violence contributed to pregnancy-related death.**

Violent pregnancy-related deaths with a manner of death of suicide or homicide represented 27 percent of pregnancy-related death (n=17; N=63).<sup>4</sup> The MMMRC found violence, including intimate partner violence, contributed to death. The most frequent means of fatal injury resulting in pregnancy-related death were airway restriction such as hanging, strangulation, and suffocation, followed by poisoning or overdose and firearms. Partners were most likely to be perpetrators of homicide among homicide cases.

**Finding #7 – A complex interaction of factors and characteristics contribute to preventable death.**

Factors contributing to a pregnancy-related death may impact a woman over her entire life. The MMMRC identified 492 factors that contributed to the 2019 preventable pregnancy-related cases (N=57) an average of 8.6 contributing factors per case. These factors help cause or aggravate the conditions or events leading up to and surrounding the death of a woman during her pregnancy or up to one year of the end of her pregnancy. Contributing factors are categorized within domains that indicate targeted prevention action levels. Identified contributing factors for preventable pregnancy-related death were distributed among the patient and family (25 percent), provider (30 percent), facility (13 percent), systems of care (20 percent), and community (12 percent) domains.

**Finding #8 – Compared to 2013, the pregnancy-related mortality ratio decreased, but disparities still persist with Non-Hispanic Black women being most disproportionately impacted.**

The final Texas pregnancy-related mortality ratio (PRMR) for 2019 decreased (16.7 per 100,000 live births) compared to 2013<sup>5</sup> (18.1 per 100,000 live births). Similarly, the PRMR for non-Hispanic White and non-Hispanic Black women decreased in 2019 (18.8 and 27.9 per 100,000 live births, respectively) compared to 2013 (20.3 and 47.6 per 100,000 live births, respectively). The disparity in pregnancy-related mortality between non-Hispanic White and non-Hispanic Black women also decreased from 2013 to 2019 with the PRMR for Non-Hispanic Black women being roughly 1.5 times greater than that for Non-Hispanic White women compared to being 2.0 times greater in 2013. However, the PRMR for Hispanic women and women in the non-Hispanic Other race group increased in 2019 (13.4 and 10.4 per 100,000 live births, respectively) compared to 2013 (10.8 and 8.2 per 100,000 live births, respectively).

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<sup>4</sup> The manner of death is the determination of how the injury or disease leads to death. There are five manners of death (natural, accident, suicide, homicide, and undetermined).

<sup>5</sup> 2013 is the only other year of pregnancy-associated cases with full committee review. In 2013, the MMMRC determined that, among 175 pregnancy-associated deaths, 70 were pregnancy-related.